Model Development Phase Template

Date	15 July 2024
Team ID	739827
Project Title	Thyroid Classification using ML
Maximum Marks	5 Marks

Feature Selection Report Template

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

Feature	Description	Selected (Yes/No)	Reasoning
Age	Age of the patient	Yes	Age is a critical factor in thyroid conditions. Different age groups may have different prevalence rates and symptoms.
Sex	Sex of the patient	Yes	Sex influences the likelihood of thyroid diseases, with females being more prone to thyroid issues.

on_thyroxine	Currently on thyroxine medication	Yes	This medication directly affects thyroid function tests and is essential for diagnosis.
query_on_thyroxine	Currently on thyroxine medication	Yes	Important to determine if patient history indicates prior thyroxine treatment.

on_antithyroid_medication	Currently on antithyroid medication	Yes	Indicates treatment for hyperthyroidism, affecting diagnosis and management.
sick	Currently sick	Yes	Illness can impact thyroid function and test results, making this a necessary feature.
pregnant	Pregnancy status	Yes	Pregnancy significantly affects thyroid function and requires distinct clinical management.
			Past thyroid surgery can alter thyroid function and influence current health status.

thyroid_surgery	History of thyroid surgery	Yes	Radioactive iodine treatment affects thyroid tissue and is relevant for diagnosis.
I131_treatment	History of I131 treatment	Yes	
query_hypothyroid	Query if hypothyroid	Yes	Helps identify patients with suspected underactive thyroid for further testing.
query_hyperthyrroid	Query if hyperthyroid	Yes	Identifies patients with suspected overactive thyroid for targeted diagnostics.
lithiium	History of lithium use	Yes	Lithium can cause thyroid dysfunction and needs to be considered in the diagnosis.
	Presence of goitre		Visible enlargement of the thyroid gland is a key clinical sign in thyroid disease.

goitre		Yes	

Tumor	Presence of thyroid tumor	**Yes**	
hypopituitary	Hypopituitary condition	**Yes**	Tumors can affect thyroid function and require specific clinical attention.
Psych	Psychological status	**Yes**	Pituitary gland issues can alter thyroid hormone levels, impacting diagnosis. Psychological health can be affected by or affect thyroid conditions, making it a relevant feature.
TSH_measured	TSH (Thyroid Stimulating Hormone) measured	**Yes**	TSH levels are a primary indicator of thyroid function and crucial for diagnosis.
TSH	TSH value	**Yes**	The actual TSH value provides direct insight

			into thyroid gland activity.
T3_measured	T3 (Triiodothyronine) measured	**Yes**	Measuring T3 helps diagnose hyperthyroidism and assess thyroid function.
T3	T3 value	**Yes**	The T3 value is essential for a detailed understanding of thyroid status.
TT4_measured	TT4 (Total Thyroxine) measured TT4 value	**Yes**	Measuring TT4 helps in assessing thyroid hormone levels in the body
TT4		**Yes**	The TT4 value is important for evaluating overall thyroid function
T4U_measureds	T4U (Thyroxine Uptake) measured	**Yes**	T4U measurement helps in understanding thyroid hormone transport and availability.
T4U	T4U value	**Yes**	The T4U value aids in the comprehensive analysis of thyroid function.

FTI_measured	FTI (Free Thyroxine Index)	**Yes**	
FTI	FTI value	**Yes**	FTI provides an index of free thyroid hormone, critical for diagnosis.
TBG_measured	TBG (Thyroxine-Binding Globulin) measured	**No**	FTI provides an index of free thyroid hormone, critical for diagnosis.
TBG	TBG value	**No**	TBG measurement is less commonly needed and may not provide additional diagnostic value
Referral_source	Source of patient	**No**	The TBG value is not essential for routine thyroid function evaluation.
target	Target classification label	**No**	Referral source does not directly impact the diagnosis or management of thyroid conditions. Target labels are used for model training, not feature selection.